

IN THE CLAIMS:

Amendments to the Claims

Please amend claims 12 and 18-20 as shown below:

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) An ultraviolet laser-generating device, comprising:

a laser ray source for irradiating and emitting a basic wave of laser ray therefrom;

a wavelength converter device for receiving the basic wave of laser ray emitted from said laser ray source and for converting the laser ray into an ultraviolet laser ray composed of a multiplied high harmonic light of the basic wave of laser ray; and

a container which is hermetically sealed and having an inlet window, upon which the basic wave of laser ray emitted from said laser ray source is incident, and an outlet window for emitting the ultraviolet laser ray composed of the multiplied high harmonic light of the basic wave of laser ray, said container including means for discharging residual gas within said container, and means for supplying inert gas which does not chemically react with the laser ray into said container, said container having said wavelength converter device installed therein.

2. (original) An ultraviolet laser-generating device, as defined in the claim 1, wherein said wavelength converter device comprises:

an optic resonator, being located within said container and constructed with plural optical members, for resonating the basic wave of laser ray; and

a non-linear optical element, being located within said container and constructed with plural optical members, for generating the ultraviolet laser ray composed of the multiplied high harmonic light obtained from the basic wave of laser ray.

Claim 3 (canceled)

4. (original) An ultraviolet laser-generating device, as defined in the claim 1, wherein on a part of inner wall of said container is provided trap means for fixing contaminants floating within said container thereon.

5. (original) An ultraviolet laser-generating device, as defined in the claim 1, wherein said container, in which said wavelength converter device is installed, is constructed in dual or triple construction, for defining an aperture between them, to be filled up with the inert gas therein.

6. (original) An ultraviolet laser-generating device, as defined in the claim 1, further comprising an optical detection means for detecting contamination condition within said container.

7. (original) An ultraviolet laser-generating device, as defined in the claim 6, wherein said optical detection means comprises plural number of photoelectric conversion elements positioned within said container.

8. (original) An ultraviolet laser-generating device, as defined in the claim 6, further comprising a detection means for detecting an output intensity of the ultraviolet laser ray emitted from said wavelength converter device.

9. (original) An ultraviolet laser-generating device, as defined in the claim 1, wherein said laser ray source comprises a solid-state laser-generating device.

10. (original) An ultraviolet laser-generating device, as defined in the claim 9, wherein said laser ray source comprises a Nd:YAG laser and a wavelength converter for converting the laser ray from said Nd:YAG laser into a laser ray having 1/2 wavelength thereof.

11. (previously presented) A defect inspection apparatus for detecting defects in microscopic patterns formed on an object to be inspected, with using an ultraviolet laser ray, comprising:

an ultraviolet laser-generating device, as defined in the claim 1;

an illumination optical system for irradiating the ultraviolet laser ray emitted from said ultraviolet laser-generating device upon the object;

an optical system for forming an optical image obtained from said object, being illuminated by said illumination optical system;

a photoelectric converter for converting the optical image, which is formed by said optical system, into a signal upon receipt thereof; and

a defect detection circuit for detecting the defect on said object upon basis of the signal obtained from said photoelectric converter.

12. (currently amended) A defect inspection apparatus for detecting defects in microscopic patterns formed on an object to be inspected, with using an ultraviolet laser ray, comprising:

an ultraviolet laser-generating device which emits an ultraviolet laser ray;

an illumination optical system for irradiating the ultraviolet laser ray emitted from said ultraviolet laser-generating device upon the object through a coherence reduction optical system, a polarized beam splitter, ~~and a group of polarizer elements~~ and an objective lens;

an optical system for forming an optical image of said object, which is illuminated by said illumination optical system ~~through the polarized beam splitter and the group of polarizer elements~~;

a photoelectric converter for converting the optical image, which is formed by said optical system, into a signal upon receipt thereof; and

a defect detection circuit for detecting the defect on said test object upon basis of the signal obtained from said photoelectric converter.

Claims 13 and 14 (canceled)

15. (previously presented) A defect inspection apparatus, as defined in the claim 12, wherein said ultraviolet laser-generating device, comprises:

a laser ray source for irradiating and emitting a basic wave of laser ray therefrom;

a wavelength converter device for receiving the basic wave of laser ray emitted from said laser ray source and for converting it into an ultraviolet laser ray composed of a multiplied high harmonic light of the basic wave of laser ray; and

a container having an inlet window, upon which the basic wave of laser ray emitted from said laser ray source is incident upon, and an outlet window for emitting

the ultraviolet laser ray composed of the multiplied high harmonic light of the basic wave of laser ray, and installing said wavelength converter device therein, wherein said container is filled up with an inert gas therein.

16. (original) A defect inspection apparatus, as defined in the claim 15, wherein said wavelength converter device of said wavelength converter device, comprises:

an optic resonator, being located within said container and constructed with plural optical members, for resonating the basic wave of laser ray; and

a non-linear optical element, being located within said container and constructed with plural optical members, for generating the ultraviolet laser ray composed of the multiplied high harmonic light obtained from the basic wave of laser ray.

Claim 17 (canceled)

18. (currently amended) A method for inspecting defects in microscopic patterns formed on an object to be inspected, with using an ultraviolet laser ray, comprising the following steps:

generating an ultraviolet laser ray by the ultraviolet laser-generating device, as defined in the claim 1;

illuminating the object with using the ultraviolet laser ray generated by said generating step;

forming an optical image of the object from light obtained in said illumination step of the test-object;

converting the optical image obtained in said forming step into a signal upon receipt thereof; and

detecting the defect on said object upon basis of the signal obtained in said converting step.

19. (currently amended) A method for inspecting defects in microscopic patterns formed on an object to be inspected, with using an ultraviolet laser ray, comprising the following steps:

generating an ultraviolet laser ray;

illuminating the object with the ultraviolet laser ray through a coherence reduction optical system, a polarized beam splitter, and a group of polarizer elements and an objective lens;

forming an optical image of the object from light obtained in said illuminating step ~~which is passed through the polarized beam splitter and the group of polarizer elements~~;

converting the optical image obtained in said forming step into a signal upon receipt thereof; and

detecting the defect on said object upon basis of the signal obtained in said converting step.

20. (currently amended) A method for maintaining the ultraviolet laser-generating apparatus device as defined in the claim 8, comprising the following steps:

monitoring an output of the output intensity detecting means for comparing it to a certain value;

obtaining an output of said optical detection means for detecting contamination condition within said container of the ultraviolet laser-generating apparatus device; and

determining maintenance of the ultraviolet laser-generating-apparatus device,
upon basis of an output obtained by said obtaining step.